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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,781	11/25/2003	Noboru Furuumi	16869K-102000US	7247

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EXAMINER

PATEL, KAUSHIKKUMAR M

ART UNIT PAPER NUMBER

2188

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/722,781	Applicant(s) FURUUMI ET AL.	
	Examiner Kaushikkumar Patel	Art Unit 2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/05/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This office action is in response to applicant's communication filed June 05, 2006 in response to PTO office action mailed February 02, 2006. The applicant's remarks and amendments to the claims and/or specification were considered with the results that follow.
2. In response to last office action, claims 1-16 have been amended. No new claims have been added. No claims have been canceled. As a result, claims 1-16 remain pending in this application.

Response to Arguments

3. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection. Lubber teaches the advantage of replication of data and physically distant remote sites in case of equipment failure, a local network outage or nature disaster (col. 1, lines 53-60). Lubber also teaches that the storage system can be enabled to function as source (main site) to initiate replication of data to destination (remote site) (col. 3, line 65 –col. 4, line 2, lines 38-49). Lubber further teaches in case of failure of one site (taught as controller or link failure), the other site migrates data to failed site (the recovery of failed site is inherently a must feature, because without recovery data migration to failed site is not possible) (col. 9, lines 23-31).

Information Disclosure Statement

4. The information disclosure statements (IDS) submitted on June 05, 2006 have considered by Examiner. The foreign patents were considered as understood by their English language abstract.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3, 5-8, 10-11, and 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Lubbers et al. (US 6,947,981 B2) (Lubbers herein after).

As per claim 1, Lubber teaches an information processing system (fig. 1 and 3) including:

a first information processing apparatus on a main site (fig. 1 and 3, items 107, col. 3, line 65 –col.4, line 2, lines 38-42, Lubbers teaches each storage location is enabled to operate as a source and as a destination, that inherently means any site can be main site (or remote site)) having a first communication port for transmitting and receiving data (column 6, lines 40-49);

a second information processing apparatus on a remote site (fig. 1 and 3, items 107, col. 4, lines 38-49, as explained above any site can be remote site) having a second communication port for transmitting and receiving data (column 6, lines 40-43); and communicating portion for executing bi-directional communication between the first communication port and the second communication port (taught as storage cells are able to function as a primary and as a secondary respectively to create bi-directional communication (column 6, lines 53-56) and storage management appliance with bridge portion that functions as manager for controller to handle the function of connecting to the communication network (column 7, lines 2-10)), the information processing system in which data is remote copied from the main site to the remote site (col. 3, line 65 – col. 4, line 2, taught as source that initiates replication of data stored within its pool of storage to destination device);

a utilizing portion for utilizing the communicating portion, for communication that transmits data from the main site to the remote site in a direction for which a first application program run on the first information processing apparatus sets the first communication port and the second communication port respectively as the sender and the destination of the data;

another utilizing portion for utilizing the communicating portion when the main site has been recovered, for communication that transmits data from the remote site to main site in a direction for which a second application program run on the second information processing apparatus sets the second communication port and the first communication port respectively as the sender and the destination of the data (Lubber

teaches a system with storage controllers with data ports which communicates through the communication path and enables each storage locations to operate as a source that initiates replication of data stored and as a destination for storing replicas of the data (column 3, lines 55-67 and column 4, lines 1-7, col. 4, lines 38-49) and these function is performed by data replication management console (fig. 3, item 107, column 7, lines 1-15) . Thus, Lubbers inherently teaches a utilizing portions to enable respective ports to operate as sender as well as receiver and vise-a-versa as receiver and sender respectively. Also, Lubber teaches that storing multiple copies or "replicas" of data at various physical locations provides disaster tolerance (col. 1, lines 53-60). Lubber further teaches if failures of components at either source (main) or destination (remote) site requires data migration from one controller to a redundant or partner controller (col. 9, lines 24-31), which teaches in the event of failure of any site, the other site migrates data to failed site after failed site has been recovered as any site can be main site or remote site (recovery of failed site is inherently a must requirement in order to replicate data from the other site).

As per claim 2, Lubbers teaches a storage system (fig. 1-3) with storage controllers (fig.3 item 105) with communication ports (column 6, lines 40-43)

communicating portion for carrying out bi-directional communication between the first communication port and the second communication port (taught as storage cells are able to function as a primary (main) and as a secondary (remote) respectively to create bi-directional communication (col. 3, line 65 –col. 4, line 2, col. 4, lines 38-49,

Art Unit: 2188

column 6, lines 53-56) and storage management appliance with bridge portion that functions as manager for controller to handle the function of connecting to the communication network (column 7, lines 2-10))

a function for writing the data to be written to the first storage device also to the second storage device (Lubbers teaches that data replication is performed by creating virtual copy sets (column 9, lines 45-67 and column 10, lines 17-35) so data written to source is replicated automatically to destination without host involvement (column 10, lines 47-50). Thus, Lubbers inherently teaches a function of writing data written to first storage also written to second storage).

a utilizing portion for utilizing the communicating portion, for communication in a direction for which a second application program run on the second information processing apparatus sets the second communication port and the first communication port respectively as the sender and the destination of the data (Lubber teaches a system with storage controllers with data ports which communicates through the communication path and enables each storage locations to operate as a source that initiates replication of data stored and as a destination for storing replicas of the data (column 3, lines 55-67 and column 4, lines 1-7) and these function is performed by data replication management console (fig. 3, item 107, column 7, lines 1-15) . Thus, Lubbers inherently teaches a utilizing portions to enable respective ports to operate as sender as well as receiver and vise-a-versa as receiver and sender respectively). Transmitting data from the remote site to main site after main site is recovered, is explained with respect claim 1 above.

As per claim 3, Lubber teaches that controllers log information to obtain knowledge necessary to connect to other controller perform data replication (column 8, lines 40-65). Thus, Lubbers inherently teaches a storing portion for storing communication path defining information on both the sender and receiver ports. Transmitting data from the remote site to main site after main site is recovered, is explained with respect claim 1 above.

Claims 5-8, 10-11, 13-15 are also rejected under the same rationales as applied to claims 1-3 above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4, 9, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lubbers et al. (US 6,947,981 B2) as applied to claims 1-3, 5-8, 10-11 and 13-15 above, and further in view of Elliott (5,420,988).

As per claims 4, 9, 12 and 16, Lubbers teaches a storage system which relates the source storage and destination storage by creating data replication groups (DRM groups) using storage virtualization (column 11, lines 25-57). Lubbers fails to teach relating copy sets using virtual paths. Elliott teaches controllers which establishes

Art Unit: 2188

multiple logical paths between I/O devices (see abstract). It would have been obvious to one having ordinary skill in the art at the time of the invention would have used multiple logical paths taught by Elliott in the data replication system of Lubbers to share single physical channel between multiple devices and also the virtual paths can be dynamically established and reset individually so in the event of failure affected paths can be reestablished (column 1, lines 64-67 and column 2, lines 1-30). Transmitting data from the remote site to main site after main site is recovered, is explained with respect claim 1 above. Lubber teaches any site can be main site and remote site with respect to each other as explained in claim 1 above, thus the storage volumes associated with respective sites can be sender/destination storage volumes.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Teloh et al. (US 2003/0014433 A1) teaches a remote data replication system.

West et al. (US 6,912,629 B1) teaches a method of restoring data from the remote backup storage.

Yanai et al. (US 6,173,377 B1) teaches a remote data mirroring system.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaushikkumar Patel whose telephone number is 571-272-5536. The examiner can normally be reached on 8.00 am - 4.30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2188

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


kmp

Kaushikkumar Patel
Examiner
Art Unit 2188


8/6/06

MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER